

REMARKS

As indicated in MPEP § 806.04(f), restriction among patentably distinct species is permitted when the species are “mutually exclusive”. This would mean that features of one of the independent claims identified as belonging to a species would recite limitations that are disclosed in the specification as only being associated with that species and not the other species. That is not the case with respect to the four species identified by the examiner in the office action.

The independent claims associated with species I-1 – I-4 identified by the examiner read upon two embodiments disclosed in the specification and illustrated in FIGs. 1 and 13. The FIG. 13 embodiment includes a replaceable fuel cartridge 350, but is otherwise generally consistent with the portions of the fuel cell 10 shown in FIGs. 1 and 9-10. Features identified in independent claims 1, 17, 24 and 28 are associated with FIG. 13 or FIGs. 1, 9 and 10 embodiments, and thus the test for mutual exclusivity of MPEP §806.04(f) is not met.

To provide an example, the feature of claims 1 and 17 used in the office action to allege that restriction should be made are, respectively, the power density of at least 15 mW/cm² and the organic fuel solution comprising at least 1.8M formic acid. As shown in FIGs. 5 and 6 and described on page 12 in explanation of FIGs. 5 and 6, a 1.8M formic acid experimental fuel cell is associated with power densities in excess of 15 mW/cm².

As an additional example relating the circulation feature of claim 24 to the features of claims 1 and 17, the specification states on page 17 that “In particular, when used with formic acid fuel solutions having a formic acid concentration of at least 1.8 M circulation of the fuel solution results to an extent that no external circulation pump or other mechanical circulation device is required. Higher fuel concentrations are generally favored due to increased CO₂ production.” As stated on page 17, “remover 38 is preferably configured to cause the gas bubbles 42 to travel some minimum distance through the chamber 32. For example, the passages 40 are preferably placed a distance A of at least 0.1 inches from the anode current collector 26.” This provides circulation, and none of the

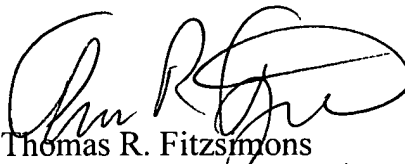
features of claims 1, 17, and 24 is only associated with one of the embodiments disclosed in FIG. 13, and in FIGs. 1, 9 and 10.

Finally, regarding claim 48, carbon cloth is associated with the high 1.8M or greater formic acid concentration fuel cells. This, again, is not limited to association with one disclosed embodiment. As stated, for example, on page 14, "Modified carbon cloth therefore appears to offer valuable advantages associated with running at high fuel concentrations."

For the above reasons, the alleged species in Group I are not mutually exclusive. Examination of all of Group I should be conducted according to the election made by Applicants.

Respectfully submitted,

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March 2, 2006

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